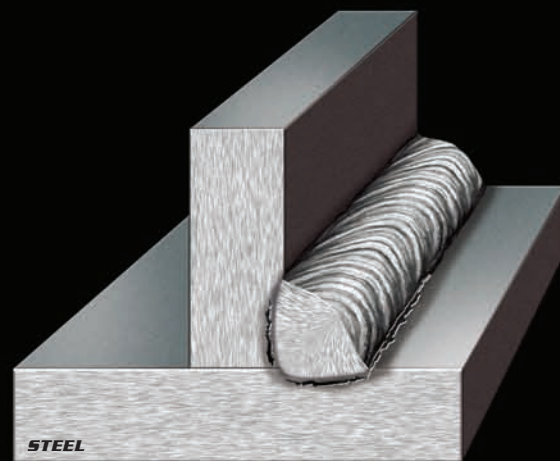


Why Welds Crack

DURING FABRICATION

- Joint Restraint
- Improper Bead Shape
- High Carbon/Alloy Content
- Low Melting Point Contaminants
- Hydrogen Pickup
- Rapid Cooling Rate



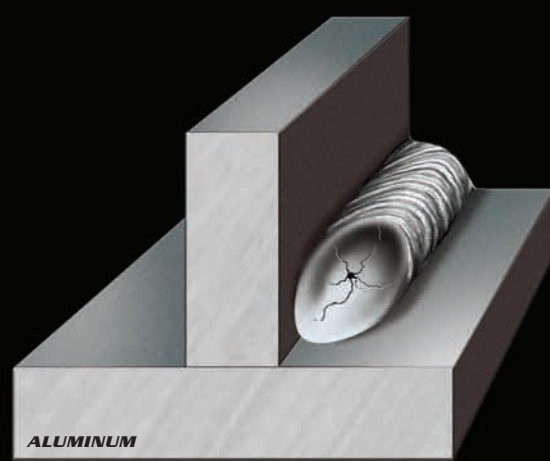
HEAT AFFECTED ZONE CRACK
(Underbead Crack)

Possible Causes

- Excess Hydrogen
- High Carbon/Alloy Content in Base Metal
- High Residual Stress Levels

Possible Cures

- Use Low Hydrogen Consumables
- Control Hydrogen Content in Weld Metal
- Increase Pre-Heat
- Increase Post-Heat



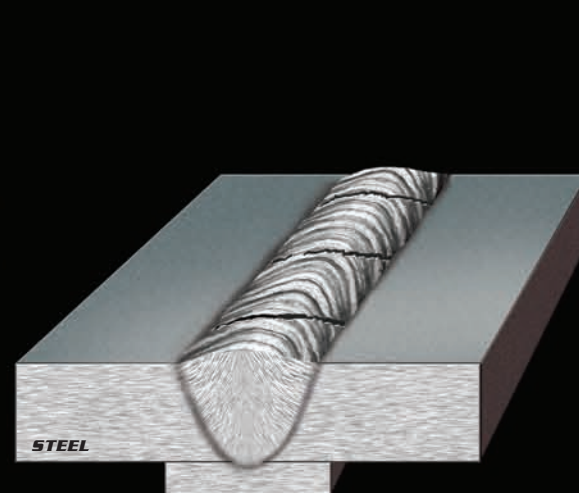
CRATER CRACK

Possible Cause

- Inadequate Crater Fill

Possible Cures

- Backstep at the End of the Weld
- Use Crater Fill Machine Settings



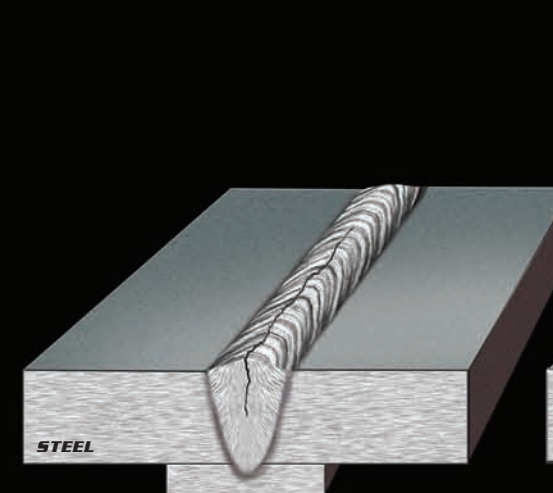
TRANSVERSE CRACK

Possible Causes

- Excess Hydrogen
- Excessive Strength in Weld Metal
- High Residual Stress Levels

Possible Cures

- Increase Pre-Heat
- Use Lower Strength Consumables (Consistent with design requirements)
- Increase Post-Heat



LONGITUDINAL CRACK
(Centerline Crack)

Possible Causes

- Improper Width to Depth Ratio
- Low Melting Point Contaminants
- Concave Weld Surface

Possible Cures

- Use Width to Depth Ratio of 1:1 to 1.4:1
- Limit Excess Penetration
- Decrease Voltage and/or Travel Speed



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